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ANALYSIS OF 171 URINARY CALCULI IN THE WARREN MUSEUM, WITH SOME REMARKS ON THEIR FORMATION.

[Read before the Boston Society for Medical Observation, November 1st, 1858, and communicated for the Boston Medical and Surgical Journal.]

BY JAMES C. WHITE, M.D.

I HAVE lately finished an analysis of a collection of urinary calculi, forty-eight in number, presented to the Warren Anatomical Museum of the Medical Department of Harvard University by its founder, the late Dr. John C. Warren. Unfortunately, the history of these specimens has not been preserved, but from the fact that in almost every case only one half of the calculus is found, it would seem that they were either purchased or obtained by exchange from foreign museums. The analysis has been conducted, as in a former instance, almost wholly by the aid of the chemical microscope, and the results are therefore much more exact than those obtained by the old methods, which are still taught in some of the European schools. In every instance the nucleus and each layer have been separately examined, and the general results are given in the following tables.

TABLE I.

Nucleus consisting of uric acid	1
" " " and urate of ammonia	16
" " " " " and urate of lime	9
" " " mixed urates, and oxalate of lime	10
" " " " " and phosphate of lime	5
" " oxalate of lime	3
" " phosphate of lime, and triple phosphate of ammonia and magnesia	1
" " a concretion of organic material	1
" " a piece of coke	1
" " a bullet	1
Total	48

TABLE II.

Calculi composed of uric acid	1
" " " & urates	11
" " " " & oxalate of lime	11
" " " " " " & phosphates	6
" " " " " " " & carb. of lime	4
" " " urates and phosphates	1
" " urates and oxalate of lime	1
" " " " and phosphates	5
" " " " " and carb. of lime	1
" " " and phosphates	2
" " oxalate of lime	3
" " phosphates	1
" " " and carbonate of lime	1
Total	48

TABLE III.

Calculi containing uric acid	35
" " urate of ammonia	39
" " " lime	20
" " " soda	5
" " " magnesia	2
" " oxalate of lime	30
" " phosphate of lime	20
" " carbonate of lime	7
" " triple phosphate of ammonia and magnesia	13

TABLE IV.

Layers of uric acid and urates followed by oxalate of lime	8 times
" " " following "	5 times
" " " " phosphates	3 times
Oxalate of lime followed by " "	11 times

In the numbers 23 and 25, Vol. LIV. of the Boston Medical and Surgical Journal, I reported the results obtained from an examination of 123 specimens of urinary calculi in the same Museum, known as the Nichols collection, and the following tables and conclusions are drawn from the analyses of both these collections.

TABLE V.

Calculi composed of uric acid	11
" " " & urates	47
" " " " & oxalate of lime	30
" " " " " " & phosphates	18
" " " " " " " & carb. of lime	4
" " " " & phosphates	13
" " " & oxalate of lime	7
" " urates and "	1
" " " " & phosphates	10
" " " " " & carb. of lime	1
" " " & phosphates	8
" " oxalate of lime	5
" " " and phosphates	3
" " phosphates	1
" " " and carbonate of lime	12
Total	171

TABLE VI.

Calculi containing	uric acid	- - - - - - - - - -	132
" "	urate of ammonia	- - - - - - - - -	114
" "	" lime	- - - - - - - - -	32
" "	" soda	- - - - - - - - -	32
" "	" magnesia	- - - - - - - - -	15
" "	" potash	- - - - - - - - -	9
" "	oxalate of lime	- - - - - - - -	79
" "	phosphate of lime	- - - - - - - -	58
" "	carbonate of lime	- - - - - - - -	20
" "	triple phosphate of ammonia and magnesia	- - -	34

In only 16 out of the whole did the calculus consist of but a single ingredient. In 45 there were two constituents; in 53, three; in 24, four; in 13, five; in 9, six; in 6, seven; and in 1, eight.

Table I. shows us how, almost without exception, uric acid and its near relative oxalate of lime form the starting point or necleus, and how seldom, consequently, were it not for the precipitation of this acid or its salts from the urine, should we meet with this distressing disease. Unfortunately, we have no means of knowing what determines the formation of nuclei, and why one individual may for years pass urine turbid with crystalline or amorphous calculous material and still remain free from this trouble; and why a calculus, on the other hand, may form within the urinary system of another, and give no hint of its existence till it has attained a large size. This only teaches us that the urine containing the greatest amount of solid matter is not necessarily the best adapted to the formation of stone; or, at all events, that something else is necessary, perhaps the aid of chance alone. What, also, when once a beginning is really formed up in those convenient lurking-places of the kidney, determines a farther precipitation and aggregation of like particles about this minute centre, whether in fact it be only a continuation of the so-called diathesis which caused the separation of the first matter, or whether it be the effect of that power which enables any crystal suspended in a complex solution to abstract from the same, in preference, all matter identical with itself, and thereby grow, we also do not know. We may surmise many reasons, indeed, but, as in many other processes of physiological chemistry, we shall never know whether we are partially right or wholly wrong. Perhaps the most plausible explanation of the nucleus-formation is a complex one, ascribing it to the combined action of the mucous membrane and changes in the pigmentary matter. It is well known that this membrane, when irritated in the slightest degree, sheds its epithelial coat freely, and that this has a tendency to agglutinate and to surround any solid body. We know quite as well, also, that many calculi have been at some time in a semi-solid condition, and, subsequently drying, present a shrunken and cracked appearance about their centre. Many of them testify to the truth of this by hoarding up in their crevices these organic remains in a dry form—fossils, in

fact. Such a cloudy deposit hovering over and settling down upon a stone in the bladder must entangle the solid matter of the urine, and glue the particles to the growing mass. Calculi have been actually removed surrounded by such an organic coating, thick enough even to entirely dull the touch of the intruding sound, and thus prevent their detection. We must remember, too, that calculi in the body contain much water, and are not in all cases the firm, dry objects we see before us.

Heller attributes the acid re-action of normal urine to urophaein, the principal coloring matter of this excretion. When present, from whatever cause, in undue amount, it causes an increased acidity and a deeper color. It is very nitrogenous, and, when decomposed, gives up a good deal of ammonia. Now, the proper solvent of uric acid is the neutral phosphate of soda, and we may obtain crystals of the former from any specimen of urine by adding an acid, as is well known. The re-action which takes place here is a decomposition of the soda salt, thus setting free the uric acid which it holds in solution. Now it is possible that an abnormal amount of urophaein may of itself generate acid enough to produce this re-action, or, as Scherer thinks, become converted by fermentation into lactic or acetic acid. We do know, at all events, that this pigment always occurs in proportion to the amount of uric acid present, and its partial decomposition will amply account for the great frequency in which urate of ammonia is found. But even if this theory be true, and we look upon this coloring matter as the cause of the nucleus-formation or uric-acid diathesis, we are still no farther advanced in the etiology of urinary calculi, for who will explain the pathology, in turn, of the pigment? Here, I think, we have reached the bar to our present knowledge; for, although many interesting semeiotic properties of this coloring principle have been observed, which may not be mentioned here, we are still entirely in the dark as to the mode or cause of its formation.

But why is oxalate of lime so often a part of the nucleus, and why is it found so frequently alternating with layers of uric acid and its salts, or mingling intimately with them? This is a substance produced artificially by the oxydation of many organic substances, and occurs also as a deposit in the urine, especially in those suffering from a disturbed respiratory process, the kidneys seeming to act as assistant lungs by abstracting the carbonaceous matter from the blood. Whether, however, they have the power to excrete oxalate of lime, as such, directly from the serum, is the matter now to be considered. In 1856, Rees, of London, published his little work "on Calculous Disease," in which he endeavors to show that the oxalate-of-lime diathesis, rendered so notorious through Bird, is only a modification of the uric-acid secretion, and that oxalate of lime is produced after the urine has been secreted by the kidneys, and is derived from uric acid and

the urates. "I have," he says, "in fact, entirely failed to detect the peculiar pathological conditions which have been said to connect themselves with the oxalic-acid diathesis, and am every day more confirmed in my opinion that it must be regarded, as I have before suggested, as an accidental and unimportant modification of that most significant variation from health which consists in the excretion of uric acid, or its compounds, in abnormally increased proportion," and "as requiring the same treatment and the same precautionary measures." This is no new doctrine, for Lehmann doubted the correctness of Bird's views long ago, and the frequency with which oxalate of lime is found as a deposit among us, unattended by symptoms, points to the same conclusion. Dr. Rees goes even farther, and states, with the concurrent authority of several German chemists, that in the majority of cases this conversion of uric acid into oxalate of lime takes place after the urine has been passed, and that we may convert a lateritious sediment into this salt simply by heating. It does not follow, however, that we have generated oxalate of lime in a sediment of urates, when we find it present after dissolving the latter by heat. We have, in fact, only cleared up the field. That the mere heating the urates and uric acid is not sufficient in itself to produce this reaction, the following experiments seem to show.

1st. A bit of calculus, composed of uric acid and urate of ammonia, was heated in normal urine freshly passed.

2d. Some of the same powder was heated in urine to which matter from a calculus composed of phosphate and carbonate of lime, and urate of ammonia, in a finely divided state, had been added.

3d. Matter from the first calculus was heated in urine with phosphate of lime artificially prepared.

4th. The same experiment was repeated, using water for the solvent, instead of urine.

In no instance was oxalate of lime formed, although there was a transference of bases, attended by crystallization of urate of lime. I would not deny that oxalate of lime is almost always produced by a decomposition or oxydation of uric acid, and that it is intimately connected with the latter, but it seems that something more than mere heat is necessary to produce the change. Very many specimens of urine which, when freshly passed, show no trace of oxalate of lime, contain its crystals after a while, which must have been formed by some chemical change subsequently to its escape from the bladder. In such cases it is not infrequent to find a few crystals of uric acid accompanying. That a certain amount of oxalate of lime may be held in solution by fresh urine, and be slowly given up on standing, is true; but this does not prove that the chemical change which produced it may not have earlier taken place in the urinary passages. Lehmann states that uric acid, under the influence of certain oxydizing agents, is usually

decomposed into allantoin, urea and oxalate of lime, and is inclined to believe that the so-called "acid fermentation" is instrumental in the formation of this salt. Heller likewise regards it as a product of the oxydation of uric acid, and has seen it formed in the murexid test, in which urine is evaporated to dryness with nitric acid. What this acid fermentation really is, we do not know; but I would suggest that it may be owing to the presence of urophaein, or to a decomposition of the same. We do know that urine, shortly after it escapes, re-acts more strongly on litmus, by the generation of a free acid; and that to this is owing, in the majority of cases, the subsequent separation of uric acid, and the precipitation or formation of oxalate of lime. This re-action is always more strongly marked in urine of a high color, which in time becomes paler. This same process, under peculiar circumstances, may as well be carried on within the urinary cavities, and cause the formation of oxalate-of-lime calculus, or its alternation and intermixture with uric acid, in the manner already considered. It is well known that the coloring matters of the urine are much increased in gout and rheumatism, both diseases in which uric acid and oxalate of lime occur as large deposits; and, further, it is in the mulberry or oxalate-of-lime calculus, a substance colorless in itself, that we find the deepest tints. This cannot always be due to the hæmorrhage. May it not be that in disease characterized by imperfect oxygenation of the blood, as emphysema and chronic catarrh, the coloring matter is excreted more abundantly by the kidneys, and, acting as the ferment, generates oxalate of lime? The blood in such cases never loses its deep color, which would seem to depend upon the presence of carbon; for as soon as this element is transformed into carbonic acid by the oxygen of the healthy lungs, we see it return to the florid, arterial color. Unfortunately, however, our knowledge in regard to the coloring matters, both of the blood and urine, is too limited to allow us to go beyond bare conjecture in this matter.

The phosphatic diathesis, so called, is, on the other hand, in no manner dependent upon the action of the kidneys, or chemical nature of the urine when excreted. It is produced solely by the power of the urinary mucous membrane to throw out an alkaline secretion when irritated. Foreign bodies within the bladder are always coated with a phosphatic crust, and the rougher forms of stone are generally sure to possess an exterior layer of phosphates. If the calculus be smooth, as some composed of uric acid, and be left to itself, it may attain a large size without causing inflammation; but if it consist of oxalate of lime, or be of a rough exterior, it will excite irritation of the lining membrane, and the consequence will be a slight alkalinity, causing a deposit of urate of ammonia. If, now, the exciting cause be sufficient to produce actual inflammation, this alkaline secretion will be poured out with great rapidity, adding greatly to the bulk of the stone, which may fill the

entire cavity where it lies. It is very rare that a phosphatic diathesis, when well pronounced, can be overcome, because in cystitis there is found a layer of mucus adherent to the walls of the bladder, in contact with which the urea developes carbonate of ammonia, thus assisting in rendering the urine alkaline. This salt, according to Heller, acts as a caustic, and prevents the formation of healthy epithelium.

We see in Table IV., however, that a phosphatic layer may be indeed, but rarely, followed by a return of the uric-acid or oxalate-of-lime formation, which may be considered a step toward recovery, or at least toward improvement. When the stone is situated in the kidney, however, this is seldom the case, for pyelitis prevents the secretion of uric acid and the coloring matter. This accounts for the enormous size which calculi often attain in this organ. Sometimes we find a slight intermixture of the phosphates with the layers of urates and oxolate of lime, followed, fortunately, by a deposition of urates; but in these frequent cases the phosphatic diathesis has never been fully excited.

How, then, account for those concretions consisting wholly of the phosphates, and containing no foreign nucleus? These are seldom seen. It may be that they are the result of cystitis, caused by the presence of another stone, or by a calculus seated in the kidney, or from whatever cause this disease may be brought on, for conglomerations are easily formed in urine heavily loaded with mucus and the phosphates.

These changes work in turn upon the general system. Emaciation follows, in which there is a decomposition of the protein compounds; carbonic acid and water are formed; sulphur and phosphorus are oxydized, and deprive the blood of its alkalies; the fibrine, thus losing its solvent, exudes more easily, and sulphates and alkaline phosphates are voided in increased quantities by the urine. When we are once certain that a calculus really exists in the bladder, the less meddling and instrumental interference the better, if we would not increase the rapidity of its growth tenfold. Calculi of uric acid, removed from the bladders of the lower animals, attain a very large size without causing the slighest irritation, and it is for this reason that we generally find them composed of one ingredient only.

The surfaces of several specimens in the collection present an eroded appearance, which, without doubt, is owing to chemical action induced by injections within the bladder. Some time ago, this was a practice much advised in England, and partial solution was frequently effected in this manner. It may be doubted, however, if an entire removal of the calculus was ever caused thus, for the re-agents must necessarily have been used in a very dilute condition, and a long time was no doubt required to produce even the superficial action here manifest. What little aid we may expect from therapeutics in this disease, must come by the use of those

drugs which, by their chemical action, prevent the formation of uric acid, or its derivative, oxalate of lime. Heller has great confidence in the solvent properties of the basic phosphate of soda, and thinks that all cases of gravel may be thus cured, and that it may even act somewhat upon a stone. He combines it with carbonate of soda. It is of course useless to give mineral acids, for they will be neutralized by the constituents of the blood, and come to the bladder as salts; and the vegetable or organic acids, or their salts, are always converted into carbonates, so that the direct administration of the alkaline carbonates is the next best treatment after the use of the phosphate of soda, as recommended by Heller. Water saturated with carbonic acid, or the "soda water" of the shops, acts in the same way. If in this way we can keep under control the uric-acid and oxalate-of-lime diathesis, it is evident we may, in nearly every case, prevent the formation of stone, and sometimes cause its solution when not advanced too far in size.

Notwithstanding the want of individual history belonging to these calculi, they form a most instructive collection, affording examples of many curious peculiarities of structure and form, which it would be vain to attempt to illustrate here.

LACERATION OF THE PERINÆUM.

BY WILLIAM W. MORLAND, M.D.

[Concluded from page 318.]

Two or three other cases may now be referred to, as bearing upon the question of operation, and more or less strongly supporting the view here taken.

In the summer of 1856, Dr. Woodward, of Quincy, Mass., asked me to see a woman with ruptured perinæum, and who was under his charge. The patient was a stout Irish woman, 25 years of age, and the rupture occurred in her first labor. Craniotomy was called for, and was done by Dr. W., who has since informed me that the rent was caused by passing the fingers into the vagina for the purpose of accelerating the delivery of the shoulders. When I saw the patient, it was some time after the accident, and granulation was in full progress; the perinæum was torn quite to the margin of the *sphincter ani*. It was decided to trust the case to position and cleanliness. Wishing to know the result, I wrote to Dr. Woodward at the time of commencing this paper, and have been very kindly furnished with replies to my questions. Dr. W. states that the woman kept her bed about three weeks after I saw her, and then arose and resumed her family duties. A few weeks after that, Dr. W. saw her on the street, and in reply to his question, she said that she was "perfectly well." The perinæum was not at that time examined, but an opportunity offered on the 16th

of January, 1858, when the woman was a second time confined under Dr. Woodward's care, and gave birth to a living child after twenty-four hours' labor, without any untoward occurrence. He, at my request, carefully inspected the parts before labor had progressed far, and found the space between the anus and the vulva only "about one third of an inch;" and on further examination, he "concluded that the portion which was torn in the former labor had not united together, but the parts had healed and contracted so as to form a very good vulva, which remained open to the cellular membrane between the vulva and the rectum, leaving the *sphincter ani* sound." "Of course," he continues, "there is a very slight imperfection of the vulva, it being more open than natural; but the woman finds no fault, and why should we?" To this query of Dr. W.'s, the answer might be made, that she doubtless would have had a better, that is a more natural, state of the parts, had the rent been united by sutures; and that so large a genital fissure as resulted, is, to say the least, not desirable.

That this state must often have the most lamentable *sequelæ*, clearly appears from evidence in another instance alluded to by Dr. Woodward in his note to me. He says: "I have never had a case [of ruptured perinæum] in my own practice, with the exception of the one here referred to. I received a severe lesson, when a student in medicine, in the case of a young woman whom I attended for another physician, and whose perinæum was torn quite through [to the *sphincter ani*]; and although she was seen by experienced physicians, no attempt was made to close the wound, and she suffered prolapse of the uterus in consequence."

In this case may be found confirmation of the previous assertion, that operative procedures, in this form of the accident, are comparatively infrequently resorted to amongst us; and the fact of consequent serious mischief is likewise abundantly proved.

With reference to the case reported from Dr. Woodward's practice, that gentleman stated, in addition, that "the perinæum [in the second labor] bore the labor perfectly well, not offering quite so much resistance as one entirely sound." He also remarked that he had delivered other women when the perinæa had been torn in previous labors, and had found them in the same state as that of the patient above alluded to. He, however, inclines to believe that patients do passably well if the *sphincter ani* itself be not infringed. A more complete restoration seems, I think, to be demanded.

An instance of laceration of the perinæum in a case of difficult labor, and where forceps were used—the child's head having become locked in an extremely small pelvis—has lately been communicated to me by Dr. H. O. Stone, of Salem, Mass., who was the operator. Dr. S. was called in consultation, January 29th, 1858; the patient, a woman of 30 years of age and a *primipara*, having been in labor about 19 hours. The head neither advanced nor re-

ceded; the face looked to the pubis; and the labor was instrumentally completed, as stated, the patient urgently entreating it. Dr. Stone writes: "With great difficulty the head was extracted. The perinæum was lacerated to the very edge of the anus; it was not torn exactly in the middle line, but a little on one side. At my visit next morning, the parts were very much swollen, and to think of using the suture in such a state of them, was out of the question. The case was entrusted to nature, position, and keeping the parts clean. It is now (March 5th, 1858) just five weeks since Mrs. —— was confined. She says she feels quite as well and strong as ever in her life. The perinæum, as yet, is but very partially united, but in time, I hope it will unite sufficiently for all practical purposes."

Whilst the very favorable termination of this case may well be remarked—both mother and child doing well at the above date—we perceive how long a time is required to obtain soundness for the parts when no operation is performed; since only "very partial" restoration was here effected in the space of five weeks. The propriety of the course adopted by Dr. Stone, in not attempting suture, under such circumstances, is evident. I may mention that, in ordinary cases, he is in favor of the operation.

At my request, Dr. J. B. S. Jackson has allowed me to extract certain cases of perinæal laceration, of the class under consideration, from his note-books. A few points suited to my present purpose will be presented from these records.

I.—November 16th, 1833. A stout, plethoric Irish woman, *primipara*, after about twelve hours' labor, was delivered of a large boy. Dr. J. found the perinæum to be very rigid and long. The latter quality and its probable influence, has already been fully referred to. The usual means to induce relaxation were all employed (fomentations, bleeding, &c.), and support was very faithfully and carefully applied when the part became distended by the advancing head. The perinæum was, however, rent down to the *sphincter ani*, "so that the forefinger being placed in the anus and the thumb in the wound, there seemed but a very thin partition between them." This was precisely the fact in the opening case of the present paper. There was, Dr. Jackson states, no pain nor soreness complained of by the patient. This again ratifies a preceding remark in reference to the necessity of thorough examination, even when the accoucheur does not perceive the occurrence of the accident at the time of the birth.

Dr. Jackson employed sutures, about one half an hour after the rent took place. He estimated the extent of the wound to be from one and a half to two inches up the vagina, "the thickness of the lacerated parts being very considerable." A curved needle was used, and four stitches were taken. One was placed rather more than an inch up the vagina; a second half way between the first and the inferior commissure of the vagina; a third through

the skin, just below the commissure; and a fourth just above the anus. "These were all taken deep; the patient was kept in bed about five weeks, and an attempt made to keep her thighs swathed together, and for her to lie on her face, in which, however, she could not be induced to persist. The lochia were rather too free, and gave some trouble; the bowels were not open for a week after the first day. The stitches soon became loose, and were cut away in a week or more. Union took place very slowly. About nine weeks after the occurrence, union was complete, except a small place which was still raw, and probably would unite before long. Perinæum of good size, if not as large as ever."

It will be allowed that the sutures were promptly and efficiently applied in the above case, and that every possible adjuvant means was put into requisition; and the issue of the case shows the advantage of the treatment. The only element impairing the latter, is the *length of time* necessitated by employing the interrupted suture. Had the *support of the quilled suture* been added, there is every reason to believe that very much would have been gained, and that union would have been solid and entire, as well as sooner effected. The case strongly supports the plan advocated.

II.—January 25th, 1834. M. H., 22 years old; *primipara;* stout and plethoric; child large;* perinæum unyielding; labor seven hours long. The perinæum was anointed well with lard, and support thoroughly applied at the proper time; rupture, however, was anticipated and took place, the rent reaching the sphincter. The wound almost exactly resembled that described in the previous case. No sutures were used; the thighs were bound together and confinement to bed enjoined. "In seven or eight days, however," writes Dr. J., "she was (notwithstanding convulsions had occurred) down stairs and about work. The lochia soon ceased. The bowels have acted regularly from the first. February 4th, perinæum in a healing condition; more so, if I remember rightly, than in the first case at the same period. February 11th, healing finely." The length of the healed perinæum is not stated.

The above instance may safely be pronounced remarkable, if not anomalous. Rules and regulations seem set at defiance. To say nothing of the very short time the patient remained in bed after confinement, she must have had an extraordinary aptitude of constitution for the healing of wounds. The case seems wholly exceptional.

III.—March 25th, 1834. A woman of 22 years, not very stout, *primipara*. Dr. Jackson felt a slight crack of the perinæal tissues with the hand which supported the part. On further examination, on the cessation of the pain, a slight fissure was found within the vagina, about one half an inch in length, and "not much, if at all deeper than the mucous membrane." The patient was

* The large size of the children in these cases, is a nearly constant element.

directed to restrain voluntary efforts; yet the perinæum was torn down to, but not into the anus. "No soreness was complained of." The next day the woman is reported as "up; soreness considerable." Remarkable to state, Dr. J. found about one-third of an inch of the wound, toward the rectum, "glued together." The patient had passed her urine naturally, resting on her hands and knees. March 31st.—"Soreness much less; no inflammation; no further union." April 10th, doing well; perinæum appears healed soundly to the distance of about two thirds of an inch from the anus; has abstained from *coitus*, by direction. Cleanliness was observed; no local applications were made; the woman attends to her household duties; there is no inflammation about the wound. "It would require one well acquainted with the parts to know they had been ruptured." June 16th.—Ocular examination showed the perinæum apparently entirely healed; the scar was visible, and would pass for a well-marked *raphé*. "Patient seems very sure that the outlet of the vagina is no larger than before her confinement."

Measurement could alone determine the last point, by comparison of the length of the healed perinæum with the average recognized length of the part. The patient is hardly a judge of this matter, if accuracy be deemed essential; and a portion of an inch, even, is important.

The union obtained, under such untoward circumstances, in the two latter instances, is surprising, and must be unusual. Hardly more than one third of an inch, if so much, of sound perinæum could have been expected, and there are often cases where there is literally *no* perinæum, properly speaking, when the patient is left to nature.

Since the above paper was read to the Society, Dr. Lyman has mentioned to me a case of incomplete perinæal rupture, which so directly corroborates the opinions I have advanced, that I requested him to furnish me with the facts. These are accordingly presented in the condensed form in which they were recorded in his note-book.

"June 14th, 1855.—Mrs. H., age 31 years, *primipara;* position of the child, the 4th of Baudelocque; weight of the child, 9½ pounds; perinæum ruptured to the *sphincter ani*. Five hours after the completion of the labor, the fissure was closed by quill-suture and two interrupted sutures. One grain of opium was administered.

"15th.—Pulse 80; urine, lochia, &c., right; the patient slept well; no pain from the sutures. A grain of powdered opium, twice in the day.

"16th.—Same record; continue pills; no secretion of milk.

"17th.—Pulse 72; one opium pill at night; milk coming.

"18th.—Milk free; no fever; union of wound perfect; sutures removed; an enema ordered.

"July 2d.—Union perfect.

"April 4th, 1857.—The patient was delivered of a second child, after thirteen hours' labor, and my note-book adds—'not a particle of laceration of the perinæum."

The case is satisfactory both as respects the efficacy of the treatment, and the sound condition of the new perinæum.

Reports of Medical Societies.

EXTRACTS FROM THE RECORDS OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT. BY F. E. OLIVER, M.D., SECRETARY.

Aug. 23d.—*Large Ovarian Tumor; Operation; Result Unfavorable.* Case reported by Dr. J. M. Warren.

The patient was 19 years old, and was in good health until eighteen months since, when she had an inflammatory attack in the region of the right ovary, which lasted about three weeks. This was in the month of February.

In June, she first perceived the present tumor, which increased so as to give her great inconvenience, principally in breathing, and had required tapping nine times—the last time, about a week since, when the distension of the abdomen and the compression of the lungs was so great, that she thought it impossible for her to have lived until the present time, unless she had obtained relief.

Tapping was last attempted below the umbilicus, but failed—blood alone coming away. It was again done above this point, and, as was shown afterward, one of the cysts only was evacuated, which afforded her temporary relief.

When Dr. W. first saw her, the tumor extended from the pelvis nearly to the upper part of the sternum, forcing up and almost obliterating the thoracic cavity. The waist measured thirty-six inches in circumference, and from the sternum to the pubis, over the tumor, measured nineteen inches. Her size had been much diminished by tapping a week previous.

Numerous solid tumors were felt in various parts of the abdomen. Through the vagina, the os uteri could be distinguished, being quite small; and the body of the uterus, apparently retroverted, was felt in the rectum. The menstrual secretion was regular, and the other functions were naturally performed. The patient suffered principally from the weight of the tumor, and from a feeling of threatened suffocation.

Having examined her in consultation with Drs. Storer and Cabot, it was decided to recommend to her the operation, not concealing from her its full danger. This was accordingly done, and she at once requested that it might be performed, saying that she could not live much longer in the state she was then in, and that she was fully prepared to meet any danger, if there was the slightest prospect of success.

The operation was done on the 27th of June. The patient being fully etherized, and it being ascertained that the bladder was empty, an incision was made from the umbilicus to the pubis. A slight dissection exposed the tumor. It was at once found that the sac was

extensively adherent, and at the seat of the last attempt at puncturing was a thickening of the sac, and an effusion of blood which covered a space of four inches or more. These adhesions being partially separated and the sac punctured, about ten or twelve pounds of water of a light color were evacuated. This partially diminished the size of the tumor, but not sufficiently to allow of its being raised out of the abdominal cavity. A trochar was therefore passed through the first sac, and the second, which lay above it, punctured, and about ten pounds more of water drawn off, of a different color from the first. The arm of the operator was now stripped to the elbow, and passed into the cavity of the abdomen. The adhesions separated, the large remaining tumor, consisting of solid substance, was raised from its bed. It was now found that the omentum was adherent; this was torn from the tumor with the handle of the knife. The pedicle, consisting of the right broad ligament, about eight inches in breadth, was tied with three ligatures, the pedicle divided, and the tumor, which weighed about sixteen pounds, removed.

It was now found that some bleeding was going on in the abdomen; and search being made, numerous vessels from the torn omentum were discovered to be bleeding freely, and required ligatures of detached portions of this organ.

During the operation, the intestines, which were crowded into the upper part of the abdominal cavity, were not seen at all; and had it not been for the necessity of searching for bleeding vessels, they would not have been at all exposed to the air, so carefully were they guarded from escaping through the wound.

The ligatures were drawn out at either end of the wound; that of the pedicle being firmly secured over a linen roller, the wound was brought together by sutures, and a firm compressory bandage placed on the abdomen over a mass of compresses.

The patient seemed at first much exhausted by the operation, but rallied by the use of a little spirit.

On the 27th, it was found that she had passed a quiet night, and was entirely free from pain. The pulse was quick; no heat; a small dose of the solution of the sulphate of morphia was ordered to be taken every three hours.

On the 28th, she reported herself as comfortable. Pulse 140. She vomited some champaigne she had taken.

On the 29th, said she felt better; pulse 120. Dr. Channing being present, Dr. W. dressed the wound in the abdomen, which looked well. There was no swelling nor discharge.

July 1st, she sank suddenly in the morning, and died about 9 o'clock.

Sectio Cadaveris.—On examination, the wound seemed well united. The pedicle was fixed to the abdominal walls, and fenced off from the abdominal cavity. The intestines were glued together, and united by slight adhesion to the lining membrane of the peritoneal cavity. A small quantity of purulent serum escaped.

The uterus was normal. The other organs also were perfectly healthy.

It is an interesting fact, that from the time of the operation until her death, she never acknowledged the slightest sensation of pain, and, until the very hour of death, her chance for recovery seemed good. The only bad symptoms were quick pulse and irritability of the stomach after the third day.

It seemed highly probable, that if the adhesions caused by the necessary tapping had not existed, the operation would have had a favorable termination.

Oct. 25th.—*Poisoning by Phosphorus.* Case reported by Dr. Ainsworth.

In the month of August last, a middle-aged woman residing in Cross street, was found, one morning, dead in her bed. She was known to have been in her usual health the previous evening. Some one sleeping in an adjoining room, heard her vomiting in the night. The case was reported to the Registrar as cholera morbus, and the woman was buried. Some suspicious circumstances were discovered and the body was disinterred by order of a coroner, and the stomach, with a portion of the intestines, was given to Dr. C. T. Jackson for analysis. On examination, this organ was found considerably altered by decomposition. The mucous membrane, about the cardiac extremity, was covered with dark-red patches, as if ecchymosed, although the cadaveric change was so great as to leave this in doubt. Near the centre of the large curvature was a diffused red patch; and about the pyloric orifice the mucous membrane was of a deep cherry-red color, this extending into the duodenum, and appearing more intense in the three or four feet of intestine examined. The mucous membrane was much softened, probably by putrefaction. About an ounce and a half of fluid matter was taken from the stomach. An analysis for detecting arsenic was commenced by pouring the fluid from the stomach into a capsule, and adding hydro-chloric acid. When the fluid became clear, the capsule was placed over a lamp, and a few crystals of chlorate of potash were added. As evaporation proceeded, a blue flame was seen on the side of the capsule, which was found to be burning phosphorus. The liquid was then filtered, and a large quantity of that poison was deposited on the filter, amounting, with that obtained by other processes, to about 22 grains. About one grain of arsenic was subsequently found, with a small quantity of peroxide of iron. It is probable that the poison was administered in the form of the "rat exterminator," which is hawked about the streets, and of which there are several kinds; one, composed of Phosphorus, ℥iv.; flour, lbs. iii.; honey, lbs. ii.; lard, lbs. ii.; Venetian red, ℥i. Another: Phosphorus, ℥iv.; meal and sugar, aa. ℥iv.; arsenic, Venetian red, ol. anisi, ———. Either of these compounds, from their sweet taste, could be easily given without detection. The paste used on common friction matches also contains a large amount of phosphorus, which can be readily dissolved. The fact that no substance has been found which acts as an antidote for phosphorus, taken with its almost universal distribution, renders it one of the most dangerous poisons; it is fatal in doses of from half a grain upwards. In small doses the poison is gradual in its operation, and is supposed to be an ingredient in the subtle poisons of the East. In larger doses the symptoms are similar to other irritant poisons. It is said, however, to give an aliaceous odor to the breath.

In an article by M. Chevalier and M. Poirier, on the danger of the indiscriminate use of phosphorus, a table is given of the cases of poisoning by this substance, from which the following is an extract:

"Whole number of deaths by phosphorus, from 1854 to 1858, 59. Criminal poisoning, 31; suicide, 18; accident, 10.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, NOVEMBER 25, 1858.

TREATMENT OF COXALGIA—METHOD OF M. BONNET.

M. Bonnet, of Lyons, read a paper to the French Academy of Sciences, on the 16th of August, 1858, in which is set forth his method of treatment of so-called white swelling of the various joints. We confine our remarks, at this time, to the measures recommended by this surgeon in coxalgia, or hip-disease, accompanied by deformity of the limb of the affected side.

M. Bonnet is in favor of immediate reduction of the distorted limb, and advises that it be placed in an immovable apparatus, and absolute rest enjoined for a certain time. He also makes use of cauterization beneath the starch bandage—that is, he applies the caustic substance to the neighborhood of the affected joint, and the bandage is then placed over it.

To the objection that pain, and inflammation of unmanageable character, may arise from the immediate re-adjustment of limbs affected as above mentioned, and that final relapse may consequently occur, M. Bonnet replies that such fears might be well grounded if the operations be done after an immature, ill-conceived and badly-executed method. Under the opposite conditions, however, he declares that immediate reduction succeeds in all such cases as would be benefited, more tediously, by mechanical contrivances; and where the latter, even, are found ineffectual or only partially serviceable, the desired end may be wholly or nearly attained.

The author lays down several rules for the management of cases of this sort. First, he represents the necessity for thoroughly considering the case, and resolving upon what ought to be done; and he points out the fact that whilst this is a comparatively easy matter when the knee- or ankle-joint is involved, it is far more difficult when the hip-joint is interested. In reference to this point, he writes as follows:—

"Practitioners continue to think that in this case they must only obviate the abnormal lengthening or shortening of the affected limb, extending one that is too short, and, if there be dislocation, cause the head of the thigh-bone to re-enter the acetabulum. These opinions, however, are only false deductions from ill-observed facts. As I have proved, in my former writings upon diseases of the joints, the orthopœdic treatment is reduced to this—viz., to obviate the flexion or lateral inclination of the thigh upon the pelvis; and, if there is dislocation, to bring down the head of the femur to the lower part of the acetabulum, of which cavity it occupies the upper portion, which latter has become elevated by deep ulceration."

The next recommendation is to understand well the necessary steps of treatment, and why they are adopted. After the patient is placed under the influence of anæsthetics, the first object to be attained is to render the joint supple—to give to it its complete and natural mobility. Without this, says M. Bonnet, those who endeavor to straighten the

limb by moderate efforts, will fail to effect their purpose; whilst those who act with great force upon it will be likely to cause a fracture of the bone. The author alludes to the appreciation by Dieffenbach of the necessity for attaining this mobility. M. Palasciano, of Naples, also acknowledged it, and added the section of the triceps femoris, to aid in its acquisition. These surgeons, however, only operated upon the knee; and, as M. Bonnet proceeds to point out, they did not realize that it is far less efficacious to make one forcible effort at flexion of a distorted limb, than it is to set up a series of gentle and gradual flexions and extensions; proceeding, finally, to the extreme limit of the natural movements of the joint.

M. Bonnet insists very strongly upon the importance of obtaining that freedom of motion in the joint, to which allusion has just been made—we present his own words:—"The secret of success in immediate reduction, is in this antecedent operation (*assouplissement*). This should be obtained first of all; and it is because it has not been recognized, or the method of obtaining it understood by most surgeons, that the latter have failed in treating deformities of long standing, especially those of the thigh: if this mobility cannot be attained, the straightening of the limb by the process of immediate reduction must be abandoned.

Surgeons must not become impatient nor discouraged at the necessity which often exists for somewhat prolonged efforts at reduction, after the joint has been rendered supple. More than a quarter of an hour may be required to keep up the efforts at traction and pressure which will secure the desired position.

Hollowed metal splints, suitably padded, may be employed to maintain the limb at rest in the proper posture; but M. Bonnet declares his preference for the immovable apparatus. The starch bandage is very effectual, according to him, in preventing a return of the deformity, and hindering the development of inflammation.

The bandage will not, however, be thus successful, except it surround, not only the affected joint, but also the joints above and below; and it must also be composed of a thick layer of cotton, and of splints of moistened pasteboard, retained in place by strips of cloth moistened with some agglutinative substance. It is, moreover, requisite to give it an immediate solidity.

For this latter purpose, M. Bonnet substitutes malleable iron-wire splints for the dry paste-board splints of M. Seutin of Brussels. This apparatus is easily moulded to the limb or joint, and when placed over two or three of the surfaces of a limb, it keeps their position firmly.

After the operation, there will necessarily be some pain—possibly severe—for a few hours. Generally it subsides entirely in one or two days; and children, says M. Bonnet, "are so rapidly freed from it, that they can be transported to a great distance after three or four days, except when subcutaneous section of muscles or tendons has been performed—when it would be imprudent to remove them.

From three to four weeks is the time stated as proper to retain, at first, the immovable apparatus. The latter is then removed, the position of the parts examined, and rectified or completed, on occasion. There is, of course, a strong and persistent tendency to reproduction of the deformity—and this must be duly guarded against. A re-application of the bandage will probably complete the restoration of the

limb to that position, which, without the previously-mentioned coadjutant means, it could not have effected.

When the joint has been restored to the desired position, the surgeon should begin to seek the re-establishment of its functions; and this he will do by manipulation in the case of children, and by suitaable apparatus in adults. Proper appliances should be employed to prevent a relapse of the part to its abnormal position, whilst the patient is standing or walking.

The author states that he has operated over two hundred times in his peculiar manner; and he estimates the number of operations where deformity of the joints was accompanied by serious structural lesion, as at least sixty. He adds:—"No one will be astonished at these figures, which may seem exaggerated, when I state that during the last four months I have operated by the method of immediate reduction eight times, in hip cases only—for those instances of coxalgia which are known as cases of spontaneous luxation."

The success attained by M. Bonnet has been highly satisfactory in youthful subjects—and especially during infancy. Strong bony anchylosis, or such as is established by very tenacious fibrous bands, with deep ulceration, usually resists all curative means; and advanced age is an unfavorable circumstance; success is doubtful in patients of from thirty to forty years of age.

We have not space, at present, to enlarge upon this interesting topic. The whole paper would well repay the trouble of translation. It should be added, that a lively discussion of the subject has been, and we believe is still engaging the French Chirurgical Society; and interesting *resumés* of the proceedings are to be found in the *Gazette Médicale* for September 11th, 1858, and in the *Gazette des Hopitaux* for the same month. Many of the French surgeons are engaged in testing the treatment advocated by M. Bonnet; and in time we shall doubtless have extended and reliable reports as to its success.

THE RECENT TRIAL FOR RAPE AT MONTREAL.

In a late number we took occasion to refer to the trial of a dentist in Montreal, for an alleged criminal assault upon a female patient whom he had rendered insensible by the inhalation of chloroform. The editors of the Montreal *Medical Chronicle*, while they agree with us in the opinion that the defendant was unjustly condemned, think that an important element in the settlement of the question would be the nature of the anæsthetic agent employed, because, according to them, sulphuric ether is much more likely than chloroform to cause erotic ideas, when inhaled. We believe this opinion to be wholly unfounded. It is not common, we presume, for such effects to follow the administration of either agent, but they do sometimes unquestionably occur, and as often with chloroform as with ether. The fact is, that the plaintiff in this case, as happened in the celebrated case of Dr. Beale, of Philadelphia, was menstruating at the time. The sexual functions were consequently in a state of excitement, and the administration of any stimulant, even a couple of glasses of champaigne wine, would have been likely to create erotic ideas, and to vividly impress the patient with the belief of their reality. The instances of such effects from chloroform are perfectly well authenticated, and one was testified to by a medical gentleman during the trial.

We take this opportunity of again protesting against the injustice

of allowing the testimony of a person concerning facts which took place while he or she was in a state of complete or partial insensibility, unless corroborated by other evidence, to have any great weight in a case like this. Whose life or reputation is safe, if a patient can so easily swear it away? It was not even established that any rape had been committed at all, any more than in the Philadelphia case to which have previously alluded, before the trial took place. We cannot forbear also commenting upon the extraordinary verdict rendered at the Montreal trial. If the defendant were "guilty of an attempt to commit a rape," upon what grounds was he entitled to a "recommendation to mercy"? What circumstances can palliate such an attempt, especially in a case like the present, where the crime would be a most atrocious violation of confidence? Either the defendant was guilty or not guilty, there could be no other alternative; and, if guilty, he ought to be subjected to the heaviest penalty prescribed by the law.

We have already alluded to the danger of administering anæsthetics to female patients without the presence of witnesses; it ought never to be done.

Correction.—In the notice of Dr. Hodges's new volume, in our last number, we very carelessly wrote *axillary* for *basilic* vein, when referring to the relation which the latter vessel holds to the biceps muscle. The slip of the pen arose from the fact that the asterisk referring to the foot-note which we were noticing, is attached just after the words "axillary vein." The error is too palpable not to be at once observed by the reader—and it is the less excusable in us since we had the following clear statement by Dr. H. directly under our eye: "The Basilic Vein, superficial at the lower part, pierces the fascia near the middle of the arm, and, accompanying the artery at its inner side, becomes in the axilla, the axillary vein." The foot-note to which we above allude is then suffixed.

We are yet further a blunderer. Referring to a mnemonic illustration by Dr. Hodges, at page 215 of his work, we confounded the word "locality," which he uses in reference to *Boston*, with the anatomical region he is describing—thus:—

Dr. Hodges says, "The student of this locality [meaning Boston] can assist his memory to retain the fact that the biceps forms the outer hamstring by the first two letters in the word *Boston* (B. O. biceps, outer)." In our notice, dwelling rather on the anatomical region than the geographical "locality," we inserted after the latter word [posterior femoral region.] We were "taken all aback" on discovering these mistakes, and we now *take them all back!* W. W. M.

Dr. Reynolds and the Eye and Ear Infirmary.—In the announcement of the changes in the officers of the Eye and Ear Infirmary, printed in our last number, we did not mean to imply that the connection between Dr. Reynolds and that institution had ceased. We are happy to state that he still remains, with the title of Consulting Surgeon.

A form of diphtheria, or diphtheritis, has, by the accounts in the public papers, been prevailing for some time in Albany and its vicinity. It is represented as similar in its symptoms to the "black tongue" or "putrid sore throat," having often a fatal termination, and more particularly among children.

TILDEN & CO.'S "IMPROVED COMPOUND CATHARTIC PILL."

MESSRS. EDITORS,—The following is the substance of remarks made by me at the Boston Society for Medical Observation, last evening, and is sent to you for publication at the suggestion of a fellow-member of the Society.

The statements, given in a late number of the Journal, of the composition of this remedy, explains what was before a mystery to me. Two or three months ago, I prescribed nine grains of the *pilulæ catharticæ compositæ* for a lady somewhat indisposed, promising her that the medicine should be efficient, but mild, and little painful in its action. I recommended the sugar-coated pills of Messrs. Tilden & Co., being unaware that the article was a different one from that properly bearing the name written in the prescription. To my disappointment and mortification, on visiting her again, I found that the things called compound cathartic pills, "all sugared o'er," as they were, had been "efficient," in their action, with a vengeance, but so far from mild, or painless, that the patient had fainted under their influence; her attendants having become so much alarmed that they would have sent for me in the night, but that I was out of town. The effect of the medicine resembled that of croton oil. The occurrence suggested doubts of the faithful preparation of the pills, which doubts are now converted into certainty.

It is almost needless to say, that Tilden & Co.'s list of pharmaceutical articles is laid aside in my desk among papers not likely to be wanted soon.

November 16th, 1858. P.

[We lately directed two of Tilden & Co.'s so called "improved" compound cathartic pills to be taken by a patient, and we are very sorry we did, since the result was griping of a very distressing character, and persistent diarrhœa for some time subsequently.—EDS.]

Dartmouth Medical College.—On Wednesday, 10th inst., the degree of M.D. was conferred on nine gentlemen, members of the medical school at Dartmouth, N. H. The address to the graduating class was delivered by Dr. Stackpole, of Dover, and is represented as abounding in good counsel and instruction.

American Dentists in Europe.—There are, we believe, from twelve to eighteen American dentists engaged in practice at the present time in different parts of Europe, and all, so far as we have been able to learn, are receiving the most flattering encouragement. There are two in London, one in Manchester, three or four in Paris, one in Berlin, one in Rome, and one in Madrid. There are also others whose places of residence we do not know, and every year adds to the number.—*Amer. Journal of Dental Science.*

The chair of Surgery in the National Medical College, at Washington, made vacant by the resignation of Prof. May, has been filled by the appointment of Dr. John G. F. Holston.

Health of the City.—The mortality continues low in Boston, although there is an increase of sickness, chiefly of a catarrhal nature. The most fatal disease during the week, next to consumption, was pneumonia, which counts 8 victims. From hydrocephalus, "infantile diseases," "old age," and unknown diseases, there were 4 deaths each. We observe one death from tetanus. The number of deaths of subjects under the age of 5 years was 28. There were three deaths of persons between 70 and 80, 3 of those between 80 and 90, and one individual was over 90.

MARRIED,—At West Springfield, 18th inst., Charles Spring, M.D., of Holyoke, to Miss Bessie Colton, of West Springfield.—At Worcester, 16th inst., Charles A. Wheeler, M.D., to Miss N. Christene Hersey, both of Worcester.

Deaths in Boston for the week ending Saturday noon, November 20th, 72. Males, 32—Females, 40.—Accident, 2—apoplexy, 2—congestion of the brain, 1—burns, 1—consumption, 16—convulsions, 1—croup, 3—dysentery, 1—dropsy, 2—dropsy in the head, 4—infantile diseases, 4—scarlet fever, 3—typhoid fever, 1—disease of the heart, 2—influenza, 1—intemperance, 1—inflammation of the lungs, 8—marasmus, 1—old age, 4—palsy, 2—syphilis, 1—teething, 2—tetanus, 1—thrush, 1—unknown, 4—whooping cough, 3.

Under 5 years, 28—between 5 and 20 years, 12—between 20 and 40 years, 9—between 40 and 60 years, 13—above 60 years, 10. Born in the United States, 53—Ireland, 13—other places, 6.